IMPROVED GRATING-BASED WAVELENGTH SELECTIVE SWITCH

BWA 8/26/04

This application claims priority to a pending U.S. patent application entitled IMPROVED GRATING-BASED WAVELENGTH SELECTIVE SWITCH, filed December 9, 2003 by Ling et al. and accorded a Serial No. 10/731,297, the benefit of its filing date being hereby claimed under Title 35 of the United States Code.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to technologies for switching and routing optical wavelengths. More particularly, this invention relates to innovative method, structures and processes to manufacture and design improved waveguide grating-based wavelength selective switches.

2. Description of the Related Art

Current state of the art in wavelength-selective optical switching based signal transmission systems are still limited by several performance deficiencies caused by crosstalk low coupling efficiency, and large size and poor form factors.

Due to the extremely wide transmission bandwidth allowed by optical fibers, all-optical fiber networks are increasingly being used as backbones for global communication systems. To fully exploit the fiber bandwidth in such networks, wavelength-division multiplexing (WDM) and wavelength-division demultiplexing (WDD) technologies are employed so that several independent optical signal streams may share the same fiber simultaneously, with the streams being distinguished by their center wavelengths. In the past, the adding, dropping, and cross connecting of individual optical signal in communication systems are done by first converting the optical signal into electrical signals. The electrical signals are manipulated electronically, which are then converted back into optical signals. However, the development of all-optical WDM communication systems has necessitated the need for all-optical wavelength selective devices. It is desirable for such devices to exhibit the properties of low insertion loss, insensitivity to polarization, good spectral selectivity, and ease of manufacturing.